
How to Improve Mobile Money Service Usage and Adoption by Nigerians in the Era of Covid-19

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Abstract:

Purpose: The paper aims to investigate how to improve mobile money service adoption and usage by Nigerians during the era of Covid-19 by examining the challenges faced by mobile money users in Nigeria.

Approach/Methodology/Design: The study used a mixed method to sample 300 targeted informal sector operators offline using questionnaires and 200 respondents online (ardent digital products users) using Google form. In reaching the targeted online sample, the study distributed the google form through social media while a judgmental and accidental sampling technique was employed to target the informal economy participants.

Findings: Both the online and offline data revealed that poor mobile network (infrastructural deficiency), security concerns, cost of services, and poor complaints resolution top the biggest hindrance facing mobile money adoption and usage in Nigeria. While the introduction of community-based complaints resolution, fixing security bugs, reduction in the cost of service, and effective stakeholder collaboration top the measures of improving mobile money adoption and usage in the country.

Practical Implications: The study identified popular misconceptions about mobile money and also provide evidence that the process of recruiting respondents influences the outcome of the result.

Originality/value: First to collect sample both online (targeting ardent digital product users) and offline (targeting informal economy operators).

Keywords: Coronavirus, financial inclusion, mobile money, mobile banking, Nigeria.

JEL code: E5, G2, L86, O33, P43.

Paper Type: Research article.

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1. Introduction

The outbreak of Covid-19 has brought about unprecedented socio-economic challenges to the global economy, Nigeria inclusive. Due to the contagion nature of Covid-19, several stringent measures have been adopted by governments across the globe as never before in the history of humanity. From total lockdown of movement to partial lockdown - allowing only the movement of essential goods and workers in essential services, these measures have consequently disrupted human existence more than one would have ever projected. We have seen disruptions to the healthcare system, the global supply chain, the shutdown of tourism, entertainment, businesses, and lockdown of worship centres, among others.

Consequently, the lockdown created several socio-economic and psychological hardship on the masses ranging from psychological trauma and panic attack (Souvik, Payel *et al.*, 2020), disruption in the flow of income especially to the poor – worsening the already existing income inequality, creating huge unemployment especially among those working in the informal economy, difficulties for patients with a serious medical condition in accessing medical services, and has triggered global economic recession (International Monetary Fund, 2020a).

In response to the socio-economic consequences that the coronavirus has created on the livelihood of the masses and the global economy, governments across the globe responded with unprecedented fiscal and monetary policy stimulus to cushion the effect of the pandemic on the masses. Such measures include providing funds to support those affected adversely (households, SMEs, and targeted industries) by the pandemic either in the form of a loan or grant. Other measures include tax cuts, budget adjustments, cash transfers (social security services), reduction of interest rates on loans, encouraging the increased usage of the digital platform for transaction with the intents of curtailing the spread of the virus and enabling the populace to transact at the comfort of their homes (International Monetary Fund, 2020b).

To encourage the usage of digital banking platforms for financial transactions like Mobile Money (M-money), most Central Banks partner with M-money service providers to reduce the cost of financial transactions using digital platforms (GSMA, 2020b). It is important to note that despite the disruption in the global economy, mobile money has proven to be a valuable tool in facilitating safe and efficient financial transactions during the pandemic. While other sectors are suffering and crashing during the pandemic, digital products, and companies like Mobile Money service providers and digital-based companies, Google, Facebook, Amazon, Alibaba are smiling to the banks, and their share is rising in 100- 300 percent (Obaro, 2020).

Mobile money is a technological advancement that allows mobile phone users to make payments, store monetary value, and send money to others safely with or without a formal bank account. It is reported that mobile money service usage

during the pandemic has grown by 6% across the globe, with West Africa experiencing the biggest upsurge of mobile money service usage (World Economic Forum, 2020). Obaro (2020) noted that mobile money accounts in Africa have surpassed \$1 billion, with West Africa being the top leader of the upsurge. In Nigeria, the report from Nigeria Interbank Settlement Scheme (NIBSS) reveals that mobile money transactions grew by 14.5 percent between February and March of 2020 owing to the pandemic (Obiezu, 2020).

However, despite the growing demand of M-money services by many Nigerians in the wake of the health pandemic across the globe, M-money service demand in Nigeria and other West African countries is still very low at about 25 percent penetration (one in four adults using M-money platforms for transactions), compared to East and South African regions (World Economic Forum, 2020; GSMA, 2020a) where three in four adults relies on mobile money for financial transaction with about 78 percent penetration. In some East African countries like Kenya, Tanzania, Uganda, South Africa, and a few others, M-money has become the medium of choice for virtually every transaction.

Nigeria, despite having over thirty-six licensed M-money operators (which should ideally serve as leverage in the financial inclusion of the under-banked and unbanked populace), only about sixty percent (60%) of the adult population are banked either through the traditional medium or through the Fintech (David-West, 2018; Obaro, 2020). Several factors have been adduced as the major cause of the low penetration of M-money services and other digital financial services in Nigeria including but not limited to prevalence of electronic fraud, high level of illiteracy, poor awareness of the mobile money services by the populace, level of income among the banking populace, regulatory and stakeholders cooperation in mobile money service delivery, among others (Matthew and Anyanwaokoro, 2016).

Similarly, several factors have also been suggested in literature towards improving the acceptance of mobile money services among the populace, among which include improving the populace perception of the perceived ease of use, trust, low cost of service, increasing usefulness, improving security issues with mobile money services, and increasing the level of transparency in the process of M-money services among others (Ezeh and Nwankwo, 2018). Given the rapid spread of the pandemic and uncertainties about its future path at a time when penetration of mobile money services in Nigeria is discernibly low, there is a need to reevaluate current strategies of improving mobile money adoption in the country in a bid to both contain the spread of the pandemic and achieve the Central Bank of Nigeria's cashless policy and financial inclusion goals.

Thus, this article shall discuss some challenges, and the strategies available to increase mobile money service usage in Nigeria during the era of Covid-19 by focusing on three key areas assessing; (i) availability of the technology and its rate

of utilization (infrastructure and tools), (ii) the level of penetration, and (iii) how much technical problems exist and the solution.

2. Literature Review

2.1 Mobile Money Technology: An Overview

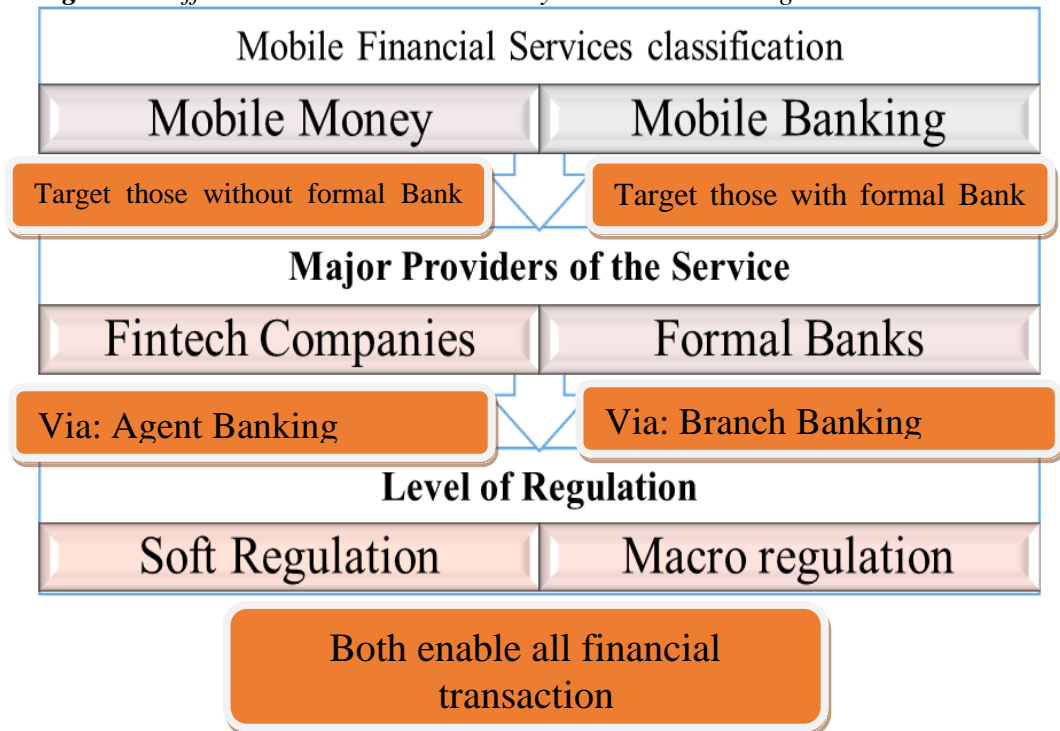
The understanding of mobile money differs across individuals and is often misunderstood by not just the users but also by professionals such as regulatory agencies, potential players, and academic literature (Sharma, 2015; Firpo, 2009). Thus, the study will first make a significant effort to explain and differentiate the key major concept.

The first misconception the public and even professionals often have is that ‘mobile money’ is a catch-it-all term used to refer to all financial service transactions like fund transfer, bill payments, mobile phone recharge, and utility subscription carried through the use of mobile phones. While the above definition is appealing, it is not entirely true (Sharma, 2015). It is important to note that 89 percent of the public see mobile money from that perspective (Sharma, 2015). Industry experts writers like Firpo (2009) of World Bank and Justin (2018) of Bank4you and much other academic literature defined mobile money as a catch-it-all term for mobile financial transactions. However, mobile money is a term often used to describe a technology that enables individuals to perform electronic financial service (store, send, and receive money) using a mobile phone without necessarily owning a formal bank account with deposit money banks. The mobile money user account is usually the same as the phone number, but not always. It is often referred to as “mobile wallet” or by some specific name like MPesa, GCash, Tigo Pesa, EcoCash, Easywallet, among others (ACP, 2014; World Remit, 2020). Mobile money is designed to reach the unbanked population and solve the problem of financial exclusion by encouraging savings among the informal sector participants, rural dwellers, and easy remittance from urban to the rural settlement through mobile agents (ACP, 2014; Sharma, 2015).

The general public often sees mobile money as mobile banking, another wrong conception. Mobile banking is another aspect of mobile financial service which allows customers of financial institutions (banks) to access their account and perform various financial transactions using their mobile phone in the form of App or USSD as common in Nigeria. However, unlike mobile money in general, mobile banking is only available to those individuals who own a formal account with the financial institution (ACP, 2014; GSMA, 2020a). Mobile banking has enjoyed greater penetration and patronage in developed countries as compared to developing countries due to their level of infrastructural development. The most unbanked populace of the developing countries often relies on mobile money service to conduct financial transactions in their mobile phone without owning an official bank account (Dermish, Kneiding, Leishman, and Mas, 2011; Sharma, 2015).

It is important to note that while the formal banking sector often provides mobile banking services, the Fintech companies often provide mobile money services (Sharma, 2015). However, due to frequent disruptions in technology and the need to diversify customer base and compete favourably in the financial sector, most formal banks are now introducing their mobile money services to compete with the Fintech companies who are already competing for the bank customers through mobile and microcredits to the informal sector operators. Figure 1 below should illustrate it better.

Figure 1. *Difference between mobile money and mobile banking*



Source: Author.

Other key concepts worth mentioning with regard to this article include mobile money payment and transfer. In the value chain of Mobile money is the 'mobile payment', otherwise referred to as mobile commerce. ACP (2014) noted that M-commerce is an electronic service that provides opportunities to the unbanked populace to perform financial transactions at a merchant shop using their mobile wallet (mobile phone) remotely instead of cash. M-Commerce uses the Global System Mobile (GSM) network and wireless connections in phones to perform commerce. Ayo, Uyinomen, Fatudimu, and Adebisi (Ayo, Ekong, Fatudimu, and Adebisi, 2007), argued that m-commerce is leveraging on the mobile money that can offer services anywhere and anytime. And this makes the transaction through M-commerce spontaneous and instantaneous (Ronald and Antonio, 2017). On the other

hand, mobile money transfer allows the public to transfer money from either their mobile money wallet to another mobile money wallet or another bank account through the mobile phone (ACP, 2014; GSMA, 2020a; World Remit, 2020). The recipient must own a mobile money account, and the sender only requires the recipient mobile account (phone number sometimes) to perform the transaction. This payment can be in the form of peer-2 peer (P2P) transaction, person to organisation, government, school fees payment, transport service payment, social events payments, loan repayment, among others.

Again, mobile money developed as a tool to reach the unreached (unbanked population) by allowing them to make financial transactions using their mobile phone number, but have evolved and used as a catch-it-all term by almost everyone out there to mean all financial services conducted using mobile phones. This statement from Guarantee Trust Bank (GTBank): “*GTBank Mobile App is a two-in-one app which consists of Mobile Banking and Mobile Money. Logging on to Mobile Banking grants access to all the accounts for which an individual is profiled with GTBank such as savings, current and domiciliary accounts, while on Mobile Money one gains access to their Mobile wallet by logging on with a phone number*” (GTBank, 2020)’, clearly indicate that mobile banking is not the same as mobile money as often understood by most people.

2.2 Mobile Money Service: What we Know

Mobile money as we know it today was launched in 2007 and popularised by M-pesa and Safaricom in Kenya. The operation was launched to mitigate the gap between the banked and the unbanked public in Kenya using their mobile device. The operation involves installing M-Pesa into the customers' mobile phone sim card regardless of whether the said customer has a conventional bank account and can be used on any mobile device (ACP, 2014). The merchant company Safaricom charges fees from the customer for every transaction while keeping a deposit on the wallet at a free cost. The service quickly increased among the informal operators and serves as the medium of settling payment for virtually everything in the economy (Dermish *et al.*, 2011). Invariably, Kenya became the leader in the mobile money service revolution and has maintained a steady lead in the mobile money service to date. In 2019, Kenya boasted of at least 74 percent of the population using mobile money service as compared to other west African countries like Nigeria that are still struggling with less than 20 percent of their populace using mobile money (ACP, 2014; GSMA, 2020a).

The spread of mobile money service in Africa is largely due to the ease at which transactions take place among the unbanked populace using mobile devices and the fact that most African countries are unbanked. Mobile money success-story is not just about Africa, countries like India have significantly witnessed an upsurge in financial transactions among the poor and an increase in financial inclusion among the unbanked as a result of introducing mobile money services (GSMA, 2020a). In

Nigeria, the growth of mobile money was rather slow until 2019, which saw an upsurge in the number of operators of mobile money and subscribers. The industry leaders in Nigeria include, but not limited to the following: Firstmonie, MoMo, Opay, Paga, GTMobileMoney, PalmPay, among others (Onaleye, 2020).

2.2.1 Current State of Mobile Money Service

As of 2019, there were about one billion active accounts in mobile money across the globe with over \$1.92 billion processed daily. More than 290 mobile money operators across the globe in 95 countries, with more than 50 million new registration in Sub-Saharan African countries in 2019 alone (GSMA, 2020a). The global growth of mobile money registration was driven by Sub-Saharan Africa, particularly Nigeria, with the license of 15 mobile operators by CBN in 2019 (GSMA, 2020a; Obaro, 2020). Table 1 below clearly reveals the milestone achievement in mobile money in 2019. As seen, Sub-Saharan African countries are driving the industry both in terms of the new registration and volume of transactions using mobile money. The growth of the registered account down to transaction value is shown in the Table. As seen in Table 1, value of transactions in mobile money across the globe has increased by more than 20 percent within 2019 alone reaching as much as \$690 billion with more than \$2 billion processed daily.

GSMA (2020a) forecast that by 2023 more than \$1 trillion will be transacted using mobile money platforms annually, which means that more than \$2.5 billion will be transacted daily using mobile money across the globe. The growth of mobile money depicts the usefulness of the platform in solving some real socio-economic issues that the traditional financial system could not solve, especially among the poor in society. The objectives of achieving financial inclusion by many developing countries have started to become a reality in the wake of an upsurge in the mobile money market.

Table 1. Regional Growth of Mobile Money in 2019

	Live Service	Registered Account	Active Accounts	Transaction Volume	Transaction Value (USD)
GLOBAL	290	1.04bn 10.2%	372m 13.6%	37.1bn 21.8%	690.1bn 26.0%
EAST ASIA & PACIFIC	52	158m 10.2 %	60m 29.4%	4.4bn 52.9%	78.9bn 41.5%
EUROPE & CENTRAL ASIA	9	20m 7.3%	7m 20.5%	217m 31.1%	3.8bn 26.8%
LATIN AMERICA & THE CARIBBEAN	27	26m 2.5%	13m -1.6%	601m -24.2%	16.5bn 1.4%
MIDDLE EAST & NORTH AFRICA	21	51m 3.6%	19m 3.5%	663m 24%	9.1bn 37.4%
SOUTH ASIA	37	315m 3.9%	91m 6.0%	7.3bn 19.6%	125.4bn 16.3%
SUB-SAHARAN AFRICA	144	469m 11.9%	181m 15.3%	23.8bn 19.7%	456.3bn 27.5%

Source: GSMA, 2020a.

2.3 Mobile Money Service in Nigeria

Nigeria is both the most populated country in Africa and the largest economy in the continent. However, the World Bank 2017 report revealed that only 6 percent of Nigerians use their mobile phones to conduct financial transactions in *mobile money platforms* compared with 73 percent of Kenyans who use their phones to conduct mobile money transactions (Shannon, 2019). What is surprising is that Nigeria mobile phone penetration has reached 84 percent compared with Kenya, which has reached 95 percent, yet, the gap between the two country's adult mobile money usages is too wide- more than 56 percent difference (Shannon, 2019). One possible explanation is that Nigeria is dominated by a young population of 10-25 years, with an average age of 18.1 in 2020 who are mostly unbanked and have no need for banking because they are still under the care of their parents (Plecher, 2020) and high informality leading to low income (Tonuchi *et al.*, 2020).

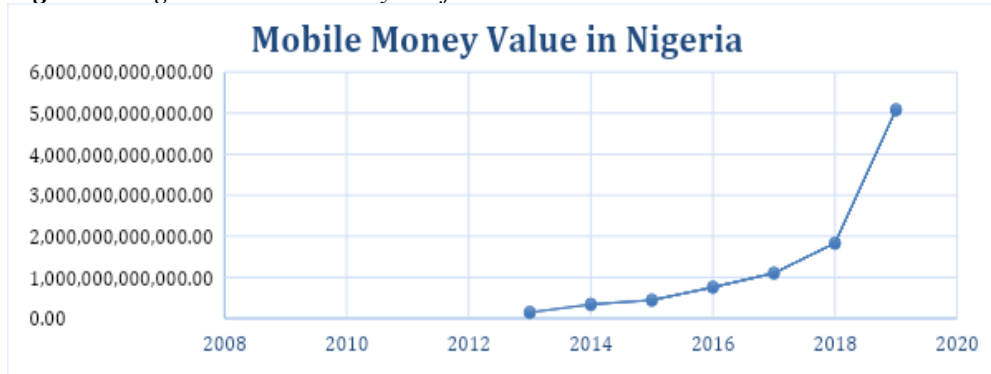
David-West, Iheanachor, and Kelikume (2018) argued that Nigeria arguably is supposed to take advantage of mobile money services to reach more than 50 percent of its unbanked population. As of 2019, the Central Bank of Nigeria has licensed more than 35 Mobile Money Operators (MNO). Some are Fintech like Paga, and Opay, others are either mobile network providers like MTN's MoMo or financial institutions like First Bank's FirstMonie. However, despite the increase in the number of operators licensed to operate in the country, the industry is still crawling in providing banking services to the unbanked using platforms like mobile money that have worked in other developing countries. Shannon (2019) argued that Nigeria's problems in driving the requisite growth in mobile money can be attributed to a lack of the required infrastructure to drive the policy.

A GeoPoll survey of mobile money penetration in Nigeria revealed that of the 500 individuals surveyed using mobile SMS, 94 percent indicated that they have used mobile money at one time or the other in the past. The findings from the poll are contradictory to reality and might be biased. One possible source of bias is the fact that most of the respondents might mistake mobile money with mobile banking. Also, the sample chosen is mostly literate Nigerians as against the illiterate bulk of the women and the youth in the street who either might not have a phone or are not just aware of mobile money services and its operations (Obaro, 2020; Shannon, 2019).

Evidence revealed that until 2019, Nigeria's mobile money industry has been growing steadily since 2013 as seen in figure 2 below. The industry witnessed its highest upsurge in 2019 following some strategic move by both the regulators and other stakeholders in the country. For instance, in November 2019, the Central Bank of Nigeria licensed additional 15 mobile money operators to compete in the market (Onaleye, 2020). What is unique about this very license is that the majority of the newly licensed operators are mobile phone industry giants like MTN Nigeria, Globalcom, Airtel, among others after years of refusing to license mobile network

providers as mobile money operators in the country. Obaro (2020) noted that the license of these mobile phone industry giants immediately saw an increase in the new registration of mobile money subscribers in the country and will likely pave ways for achieving the nation's cashless policy.

Figure 2. Nigeria Mobile Money Performance 2013-2019



Source: Author.

Other significant events that led to the upsurge in the mobile money service in Nigeria includes a significant partnership between Nigeria fintech companies with other financial industry leading giants in other countries. For instance, it was in 2019 that Nigeria-based Interswitch company saw huge investment from Visa and Flutterwave partners with Alipay to reach many Africans in China (GSMA, 2020a). Other Fintech companies in the country are also making significant efforts to reach more of the unreached by providing the unbanked population with certain services that the conventional banks are unable to provide to their customers, such as microcredit without a prior account with the companies, thereby attracting many Nigerians to the platform.

However, despite these huge achievements in 2019, Obaro (2020) noted that there are more than can be achieved in the industry especially given the present Covid 19 pandemic ravaging the country. The author argued that mobile financial services have emerged as a leading catalyst for financial sector development and the need will even persist given the outbreak of Covid-19 across the globe. The author noted that mobile money penetration will not only help in reaching the unbanked population but will assist in curtailing the spread of Covid-19 among the poor who mostly deal with cash. He, therefore, calls on the government to partner the private sector by easing some of its regulation of the Fintech industry to achieve the financial inclusion and cashless policy objectives of the country.

2.4 Improving Mobile Money Acceptance Prospects and Challenges

Literature has identified several factors as the major challenges towards the adoption of mobile money across the globe from security (threat of fraud and money

laundering), lack of awareness, regulatory issues, poor partnership between the major industry stakeholders, to the poor state of infrastructural development in the country, among others (Chatain, Hernandez-Coss, Borowik, and Zerzan, 2008; Omol, 2016; Matthew and Anyanwaokoro, 2016; Obaro, 2020).

For instance, Chatain *et al.* (2008) in their study on improving the adoption of mobile financial services noted that one of the biggest challenges facing mobile money adoption is the threat of money laundering and terrorist financing using mobile money. The author noted that the fact that individuals can register anonymously under mobile money without rigorous verification of the identity of the user makes it difficult to check money laundering and fraud. Mobile money can be a hiding place for terrorists. Users of mobile money are often susceptible to cybercrime, thereby reducing the trust of the public on the platform. Mathew and Anyanwaokoro (2016) noted that because transaction is instantaneous in mobile money platforms, the platform becomes a hiding place to brood terrorists, criminals, and encourage all kinds of illegal transactions. They noted further that security and high level of illiteracy among many Nigerians are a big challenge to the adoption of mobile money in Nigeria.

Zutt (2010) noted that while adoption of mobile money has some fundamental challenges; especially money laundering and cyber securities, the challenge should not deter its adoption but rather the stakeholders should come together and proffer solutions in mitigating these challenges. The author noted further that carrying physical cash has its challenges like exposure to robbery and lately, transmission of the coronavirus.

On factors increasing the adoption of mobile money, Ezeh and Nwankwo (2018) noted that factors such as ‘perceived ease of use’, ‘perceived financial cost’, and amount of information among mobile money customers about mobile money are key determinants of mobile money acceptance in Nigeria and elsewhere. The author argued further that referral from existing customers on the effectiveness of the mobile money service further drives the acceptance of the service by the general public. This is similar to the findings of Omol (2016) who find that perceived ease of use of mobile money, mobile money service awareness by the public and general orientation are factors influencing the adoption of mobile money.

A study by Narteh, Mahmoud and Amoh (2017) on mobile money usage in Ghana identified social influence as a key driver of mobile money adoption in the country. Other drivers as suggested by the authors include the perceived trust, low cost for the use of the service, usefulness, and ease of use. Muchiri (2018) shared a similar opinion when the author investigated what influenced the adoption of mobile money by SMEs in Kenya. It was discovered that ease of use, cost-efficiency, convenience, safety, diversity, and accessibility are the leading drivers of mobile money acceptance in the country.

While mobile money and mobile banking transactions have surged during the pandemic, several Nigerians are yet to embrace mobile money services largely because of several factors from security, awareness, cultural mindset, ease of use, and many more. This study will, therefore, breach the gap of several literatures in the past by exploring fresh insight as to the methods of improving the mobile money adoption and possible challenges deterring many Nigerians from embracing mobile money especially during this pandemic.

3. Empirical Analysis

3.1 Sample and Population of Study

This study examines the challenges and strategies of improving mobile money adoption and usage in Nigeria in the wake of Covid-19 pandemic. In literature, one major issue was noticed with previous studies – data collection approach. For instance, previous studies either used electronic medium like Google form, Survey Monkey, email among others to collect data on mobile money adoption among the target population, or they employ an offline approach (face to face distribution of questionnaire to respondents) to collect data from the rural dwellers. While each approach is great and ideal in most cases, it sometimes creates some element of bias in favour of the illiterate (rural, face-to-face approach) or bias in favour of the literate (electronic survey approach). A good example is seen from the survey conducted by Shannon (2019) through the GeoPoll Survey whose finding is far from reality.

This study will employ both an electronic (online) approach and offline (face-to-face) approach in collecting relevant data with the intent of seeing the picture from two perspectives. First, the researcher, using Google Forms, distributed questionnaires to Nigerians online using different social media platforms (WhatsApp, Facebook, Telegram, email, among others). The researcher ensures that respondents must be Nigerians, have a valid email, and must be above 18 years to participate in the survey. This is to ensure that literates who regularly use mobile phones to conduct financial transactions and individuals who are most likely to perform financial transactions are only captured. Secondly, the researcher targets offline regular Nigerians in Ogun State Nigeria who are mostly operating in the informal sector; market women, street vendors, taxi drivers, Okada riders, unemployed individuals among others to respond to the questionnaire. The intention is to see the challenges of mobile money adoption from two sides; the informal economy operators who arguably are the reason for introducing mobile money and from the perspective of ardent digital products users who have experience in using digital products to provide a balanced solution to mobile money adoption in Nigeria.

The study employed a non-probability sampling technique using both judgmental and accidental sampling methods because of the nature of the topic and because of government travel restriction. Creswell (2014) stated that when the researcher is

more interested in targeting certain individuals and those willing to participate in a survey, accidental sampling becomes the ideal, and is mostly relevant for collecting data that affect everyone in the society. Why the result generated might not measure exactly the true picture phone and mobile money penetration currently in Nigeria because of non-probability sampling techniques employed, the result will significantly identify the commonest challenges facing those using mobile money and provide possible measures to improve its usage in the era of Covid 19.

3.2 Data Analysis and Ethical Issue

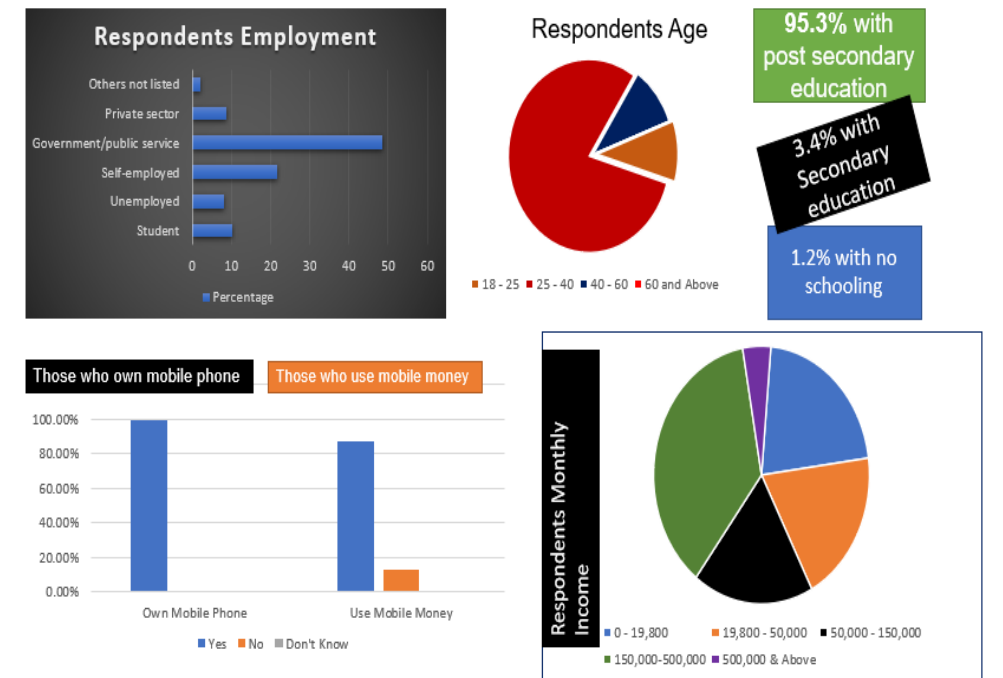
Data collected will be analyzed using basic descriptive statistics such as frequencies, percentages. Specifically, the researcher will use tables and graphs to provide insight into the challenges and ways of improving mobile money usage in Nigeria. In particular, the researcher will compare the findings from both the online survey and the offline survey to see if target respondents affect the outcome of mobile money penetration and adoption in Nigeria and the challenges facing the users. The study did not collect any personal information from the respondents and clearly explained the objective of the survey to the participants and only sampled those respondents who gave their consent for participating in the survey. The study targeted 500 respondents in total, 200 online, and 300 informal sector participants offline following the suggestion of Creswell (2014).

4. Results and Discussion

This section presents and discusses the findings from both the online and offline responses. A total of 412 individuals responded to the questionnaire, 251 from offline, and 161 from online using Google forms. Both findings of online and offline will be discussed simultaneously and a comparison made when necessary.

Figure 3 presents the demographic distribution of the online respondents. As seen here, government and public service employees dominate the online survey; accounting for about 49 percent of the respondents, followed by self-employed individuals. As expected, ages 25-40 dominate the survey, accounting for more than 79.4 percent of the sample, while ages 18-25 years and above 40 years takes second and third position, each accounting for 9.7 and 11 percent respectively. Individuals' earnings ₦50, 000 – ₦150,000 monthly income was common, taking about 36 percent of the sample. It was followed by those earning between ₦0 -₦19,800 and ₦19,800 – ₦50,000 and accounts for 22.5 and 19.2 percent of the respondents respectively. Interestingly, approximately 95 percent of the sample population has post-secondary school education with no primary education respondents.

Figure 3. Demographic/ Basic Information of Online Respondents

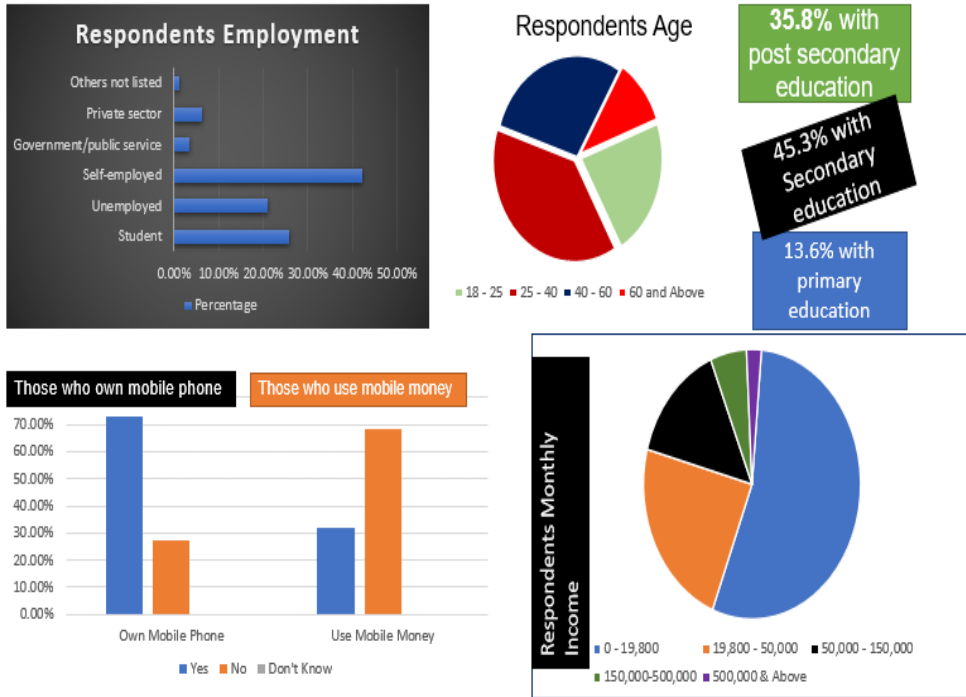


It was further revealed that 99.4 percent of the respondents own smart mobile phones, this can be explained by the fact that the sample is sourced online through emails and different social media. 87.2 percent have used mobile money before compared to 12.2 percent who have not used mobile money before. One possible explanation of the high number of those indicating they have used mobile money before is the issue discussed earlier in literature review, the ‘catch-it-all’ term used for mobile money as all *mobile financial transaction*, arguably most of the online respondents might understand the term ‘mobile money’ as mobile financial transaction despite brief explanation of the concept in the introductory section of the survey. In any case, whether mobile money or mobile banking, the most important thing is that 87.2 percent of the online respondents use mobile phones to perform financial transactions, which is a necessary condition for mobile money adoption.

The data from the Offline survey is quite revealing. Self-employed or individuals working in family businesses dominate the sample, accounting for 42 percent of the respondents. It was followed by students and unemployed individuals which accounted for 26 and 21 percent respectively unlike the online respondents where government/public service employees dominate. Again, ages 25-40 years as in the online survey, dominate the survey, accounting for 39 percent of the sample. It was followed by age 18-25 years and 40-60 years accounting for 30 and 23 percent respectively. Also, unlike the online data, those earning ₦0-19800 monthly dominate the survey accounting 54 percent of the sampled population and followed

by those earning between ₦19800 - ₦50,000 accounting for about 23 percent of the respondents.

Figure 4. Demographic/ Basic Information of Offline Respondents



Both groups represent more than 70 percent of the population which means that the sample contained more of the informal economy participants, the ideal target of mobile money technology – the unbanked population. Similarly, unlike the online respondents, only 35.8 percent have post-secondary education as compared to the online respondents with 94 percent having post-secondary education. 45.3 and 13.6 percent have secondary and primary education in the offline data.

Another striking finding is that mobile phone penetration from the Online survey is 99 percent of the sampled population while it is 72 percent from the offline survey (that is percentage of those who own mobile phones) and this explains one of the challenges to the usage and adoption of mobile money in Nigeria. On mobile money usage, the offline survey revealed that only 31 percent of the respondents had used mobile money service (not mobile financial service) before the study, while 68 percent have never used mobile money (31 percent mobile money penetration). One possible explanation of the difference between the online and offline data on mobile money penetration in Nigeria is the medium of collecting the data (target population) and the fact that the offline respondents have the opportunity of interacting with the researcher face-to-face and have a clear understanding of what

mobile money is. The 2019 revolution and strategic partnership between regulators and mobile money providers as well as inflow of international investment into Fintech companies in Nigeria is a possible explanation for the growth of mobile money penetration in Nigeria from 6 percent in 2017 to 25 percent in 2020 (World Economic Forum, 2020; World Bank, 2018) and possibly 31 percent based on this survey. The findings from the online survey with 99 and 87 percent penetration in both mobile phone and mobile money usage can be likened to the findings of Shannon (2019) of GeoPoll survey who finds 94 percent mobile money penetration in Nigeria. Of course, both the online survey and Shannon (2019) research suffers from respondents' possible misconception of the concept of mobile money to mean mobile financial services.

On the challenges facing those who have used mobile money before the study in Nigeria, both the offline and online respondents present similar but distinct responses as presented in Table 2 below.

Table 2. *Challenges and Difficulties facing those using Mobile Money Service in Nigeria*

Variables/Items	Percentage Offline	Percentage Online
Difficulty understanding the process	16.2%	0.7%
Network Issues	64.9%	82.7%
Security compromise/fraud/cyber criminals	29.7%	24.5%
Others not willing to accept digital payment.	6.8%	28.8%
Multiplicity of operators	15.8%	8.2%
Poor complaint resolution system	7.7%	41.7%
Platform fail to provide evidence of transaction	4.1%	18%
Level of awareness of the masses	42.6%	15.8%
Cost of SMS alerts and charges	8.1%	20.1%
Others	7.7%	7.2%

Source: *Researcher's Field work.*

One interesting finding from both online and offline survey data is that network issues ranked the most significant issues facing the user of the platform. The offline data revealed that 65 percent of the respondents noted that network is the major issue they have with mobile money services. This figure became higher for the online response where as much as 83 percent identified network problems as the challenge often faced when using the platform. Poor complaints resolution method is the second most ranked challenge faced by online respondents with 41.7 percent of the respondents identifying this as a major challenge encountered while using mobile money. Some of the offline respondents noted that the reason they stopped using mobile money services, especially mobile banking is because most times if they sent money to others their account were often debited but the recipient won't

receive the money because of poor network, and sometimes, the time and processes in reverting the transaction is cumbersome. And this possibly explains why most online respondents rank network and poor complaints resolution as the most challenging issues faced using mobile money services in Nigeria. Public awareness and security represented the second and third most significant issues facing the offline respondents with 42.6 and 29.7 percent of the respondents identifying these as threats to the platform.

Another significant finding with regards to the challenges facing mobile money users worth mentioning is the difficulty in understanding the process. As much as 16.2 percent of the offline respondents identified this challenge faced when using the M-money services. The finding might be because most of the respondents are either primary or secondary school certificate holders since only 0.7 percent identified this as a problem in the more educated online respondents.

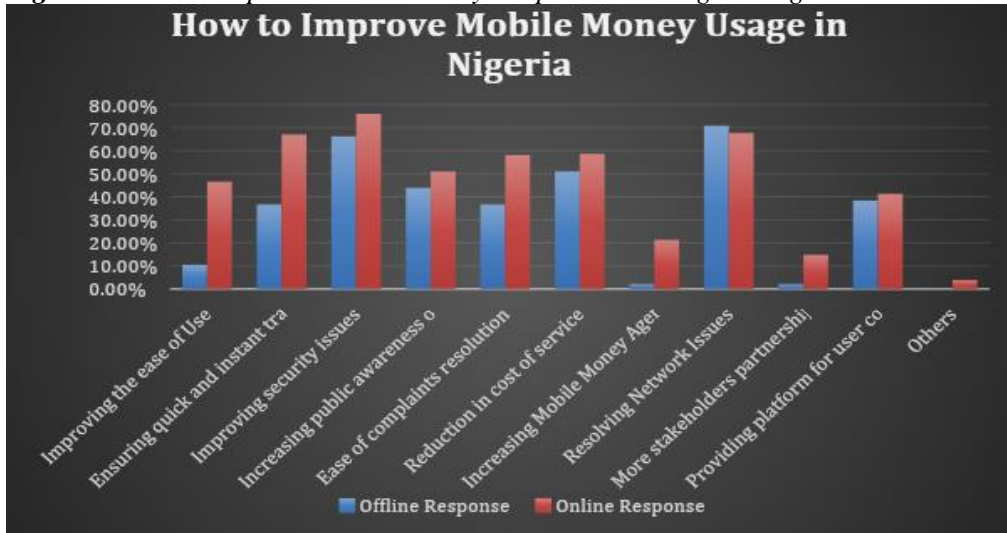
Table 3. Reason Respondents don't use Mobile Money Service in Nigeria

Variables/Items	Percentage Offline	Percentage Online
Trust/Security threat related	7.2%	48.8%
Not aware of mobile money services	50.2%	12.2%
Don't know how to use it	41.4%	19.5%
Don't have mobile phone	41.6%	2.4%
Networks issues	58.4%	48.8%
Don't see its usefulness	32.5%	12.2%
Complaints from other users	53.3%	26.8%
Not educated	20.5%	0%
Others	8.4%	14.6%

Source: Researcher's field work.

Again, network-related issues rank the highest from both the online and offline respondents of those not using mobile money services currently in Nigeria. As much as 58.4 percent offline respondents and 48.8 percent online respondents noted that network issues deter them from using mobile money. The implication is that mobile network operators have a significant role to play in ensuring the adoption and usage of mobile money in Nigeria. Another major discovery from the offline respondents is that as much as 53.3 percent noted that the negative complaints from existing mobile money users informed their decision not to use mobile money. Again, 'public awareness' and 'not knowing how to use mobile money' are also major problems for 50 and 41 percent of the offline respondents but only to 12 and 19 percent of the online respondents see this as a problem.

Having examined the challenges facing the usage of mobile money from both the users of the platform and those who have failed to embrace the technology, the study also examines how to improve its adoption and usage in Nigeria.

Figure 5. How to improve mobile money adoption and usage in Nigeria

Arguably, Figure 5 represents the crux of the matter under investigation. Again, both the online and offline respondents seem to have some consensus regarding how to improve mobile money usage in Nigeria. 71 and 68 percent offline and online respondents identified resolving network challenges as the surest pathway in encouraging mobile money usage and adoption in Nigeria. Interaction with offline respondents revealed that network related issues like failed transactions without automatic reversal and delay in transactions and notification are their major concerns. There are instances where customers wait for hours in the mobile agent's shops for the agents to receive notification of transfer to disburse cash to the customers.

There are other instances where mobile phone airtime recharge using mobile money or mobile banking platforms fails, yet the customer's account is debited without funding his/her phone line. In some cases, the customer will simply ignore the failed transactions instead of complaining given the difficult process of resolving such issues. This clearly reveals an infrastructure deficiency in Nigeria's mobile financial transactions as compared to other countries.

Improving security related issues top the chart for online respondents with 76 percent in favour and second to offline respondents with 66 percent noting this as a major issue that should be investigated. The finding is not unexpected as lots of fraudsters have been taking advantage of government palliatives for Covid 19 as a bait to defraud many Nigerians using mobile money platforms. The need to assure Nigerians of the safety of the platform was stressed by Obaro (2020) when he argued that stakeholders need to come together to make the platform more secure to boost the confidence of Nigerians on the platform. Reduction in the cost of services by mobile money service providers is another issue that is generally supported as a

solution to the usage and adoption of mobile money in Nigeria. More than 50 percent of respondents from the two categories ranked this as a major way of improving the platform. This is like previous findings from the likes of Masocha & Dzomonda (2018) and Omol (2016) who find that cost of service and ease of use as the major approach to improving mobile money adoption. Although the Central Bank of Nigeria has intervened by encouraging the mobile money operators, including the banks to reduce their charges for transactions in mobile money platforms to encourage more usage during the pandemic, nonetheless transaction charges, SMS alert charges by the mobile money providers is still a major concern for many Nigerians who use the platform.

Two other major recommendations for improving mobile money adoption from both the online and offline respondents is the need to ensure instant transactions with more than 40 and 36 percent in both online and offline respondents voting this as a major strategy in improving the platform. Again, this can be linked to the issue of network quality. If the network is stable, the transactions between individuals are supposed to be instant. One offline respondent noted that she prefers cash transactions because mobile money often delays transaction notification in which case you might need to wait for at least 30 minutes to one hour for the other party to confirm receipt of the transaction. A platform for speedy complaint resolution is also identified as a major factor that will improve the mobile money usage with more than 40 percent voting. The idea is clear, if network related issues like delayed transactions, failed transactions, and other technical issues encountered while using the platform can be resolved within minutes, many won't be bordered by network failure related issues.

The respondents were further asked to choose their preference between the traditional banking/ normal cash transaction and mobile money service/ mobile phone transaction. It was discovered that 94 percent of the online respondents choose mobile money while 68 percent of the offline respondents choose mobile money over conventional transactions on individual counts. The response is captured in a word cloud in Figure 6 below. As seen from the word cloud, mobile money or mobile banking dominates the response and among the top reasons given for choosing mobile money is that it is secure, convenient, saves time, more efficient, reduces the stress of going to the bank, prevents fraud and robbery associated with carrying cash.

Other factors identified are that it facilitates instant transaction, it is fast, opportunity for self-service makes payment for other services easy at the comfort of one's home among others. On an individual's count, 40 percent choose mobile money because of convenience, 34 percent because it saves time, 31 percent because it is safe or safer, 29 percent because it reduces stress among others. One natural question would be, why do most Nigerians still rely on conventional cash transactions instead of mobile money or mobile banking despite overwhelmingly voting for mobile money or mobile banking? The answer is because of those challenges identified earlier.

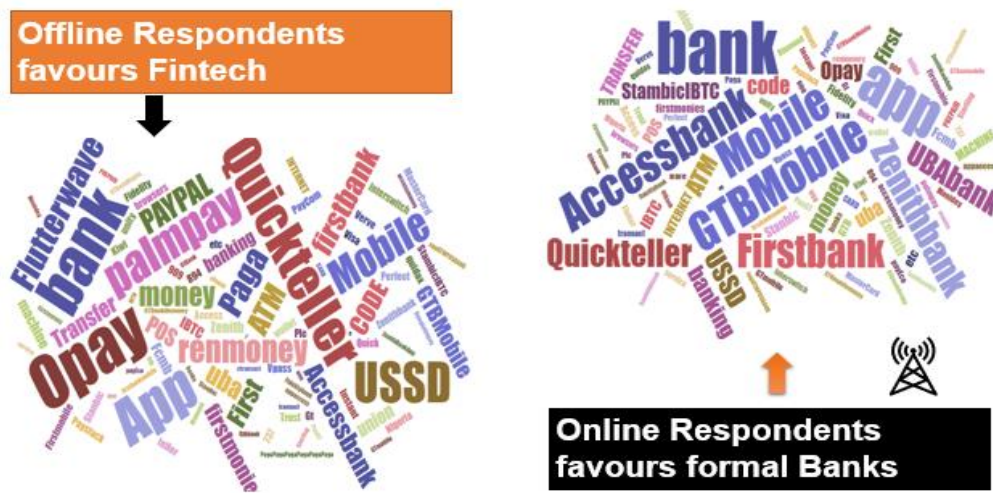
Figure 6. Mobile Money preference over cash transaction word cloud

Source: Researcher's based on field work.

The study further probe to discover the most widely used mobile money service providers or the biggest mobile money service providers in Nigeria. Again, the findings revealed that the majority of the online respondents mix both mobile banking Apps and mobile money apps and tend to embrace mobile banking tools in conducting their mobile financial transactions than the offline data as seen in Figure 7. Most of the offline respondents favours the Fintech mobile money service providers Opay, Paga, iRecharge, Quickteller as compared to the online respondents who favour mobile banking App like GTB Mobile, First Bank, Zenith, and Access Bank apps. Again, it is quite challenging for the online respondents as most of the banks offer both mobile banking services and mobile money services in one App like GTB mobile App as identified by majority of the respondents online. One inference from the findings is that Fintech mobile money service providers like Quickteller, Palmpay, renmoney, and Opay is popular among the informal sector respondents largely because of other unconventional services they provide which the large deposit money banks could not provide, such as instant money lending without any prior account with the mobile money service providers.

In Nigeria, prior to the revolution of banking services by the Fintech companies, households did not have access to instant loan without opening and operating certain monetary balances with the banks. This was however revolutionised by the Fintech companies like Quickteller in Nigeria. Some important features to improve the usefulness of mobile money services were suggested by some respondents. These include the introduction of a community-based customer complaints resolution centre to serve members of the community, the introduction of a knowledge base on the process of changing passwords, activating new mobile phones. Others imagined features such as the introduction of more payment options, platforms to donate to charities online, the introduction of customer service hotline that will resolve failed transactions in the USSD codes, as well as ability to make payment through cryptocurrencies among others.

Figure 7. The Most Popular Mobile Money Service Providers in Nigeria.



Source: Researcher's based on field work.

5. Conclusion

The study revealed that mobile money adoption and usage growth have been slow in Nigeria compared to other East African countries like Kenya where mobile money is said to have originated. It was discovered that despite a high - more than 80 percent phone penetration in Nigeria, mobile money penetration is still within 30 percent. On the other hand, if the interest is on mobile financial services, then penetration rate is within 50 percent. Also, fintech companies like Quickteller, Opay, have played a major role in driving financial inclusion in Nigeria through targeting the unbanked population, providing mobile financial services without any formal bank account. Poor mobile network and security-related concerns, cost of services, and lack of effective complaints resolution platform are the four major issues facing mobile money usage and adoption in the country.

In particular, security challenges have been a concern not just for mobile money users but also the regulators who fear the platform will encourage fraudulent activities like money laundering. This is because the mobile phone network operators (MNO) that most Fintech relies on for accurate demographic statistics of the phone subscribers often witness a situation where some Nigerians register multiple Sim cards under different names either out of ignorance or simply to evade unique identification by the MNOs. It, therefore, calls for collaboration between regulators, Mobile Network Operators (MNO), Fintech, and formal banks to provide quick and efficient mobile financial services to Nigerians. The regulators should as a matter of urgency work with the mobile network providers to ensure a stable mobile phone network to increase the confidence of Nigerians in the platform, thereby facilitating the achievement of financial inclusion strategy and cashless policy of the Central Bank of Nigeria.

References:

- ACP. 2014. Mobile Money Services: A Bank in Your Pocket, Overview And Opportunities. ACP Sectatiat. https://publications.iom.int/system/files/pdf/mobile_money.pdf.
- Ayo, C.K., Ekong, U.O., Fatudimu, I.T., Adebisi, A.A. 2007. M-commerce Implementation in Nigeria: Trends and issues. *Journal of Internet Banking and Commerce*, 12(2).
- Chatain, P.L., Hernandez-Coss, R., Borowik, K., Zerzan, A. 2008. Integrity in Mobile Phone Financial Services Measures for Mitigating Risks from Money Laundering and Terrorist Financing. Washington, D.C., World Bank. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/316191468338512619/integrity-in-mobile-phone-financial-services-measures-for-mitigating-risks-from-money-laundering-and-terrorist-financing>.
- Creswell, J.W. 2014. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA, Sage.
- David West, I.K. 2018. A Resource-Based View of Digital Financial Services (DFS): An exploratory study of Nigerian providers. *Journal of Business Research*, 88, 513-526.
- Dermish, A., Kneiding, C., Leishman, P., Mas, I. 2011. Branchless and Mobile Banking Solutions for the Poor: A Survey of the literature. *Innovations*, 6(4), 1-14. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1745967.
- Ezeh, P., Nwankwo, N. 2018. Factors that Influence the Acceptance of Mobile Money in Nigeria. *Journal of Research in Marketing*, 8(2), 1-15.
- Firpo, J. 2009. E-money – Mobile money – mobile banking – What’s the difference? World Bank: [https://blogs.worldbank.org/psd/e-money-mobile-money-mobile-banking-what-s-the-difference#:~:text=While%20MMT%20addresses%20person%2Dto,%2Dsale%20\(POS\)%20terminal](https://blogs.worldbank.org/psd/e-money-mobile-money-mobile-banking-what-s-the-difference#:~:text=While%20MMT%20addresses%20person%2Dto,%2Dsale%20(POS)%20terminal).
- GSMA. 2013. State of the industry 2013. Mobile Financial Services for the Unbanked. GSMA. <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/04/annualreport200927.pdf>.
- GSMA. 2020a. 2019 State of The Industry Report on Mobile Money. GSMA Association. <https://www.gsma.com/sotir/wp-content/uploads/2020/03/GSMA-State-of-the-Industry-Report-on-Mobile-Money-2019-Full-Report.pdf>.
- GSMA. 2020b. Mobile money recommendations to central banks in response to Covid-19. GSMA: <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/04/Mobile-money-recommendations-to-central-banks-in-response-to-COVID-19.pdf>.
- GTBank. 2020. Mobile Banking. <https://www.gtbank.com/personal-banking/ways-to-bank/mobile-app>.
- International Monetary Fund. 2020a. International Monetary Fund. (2013-2020) World Economic Outlook. Washington, DC, IMF.
- International Monetary Fund. 2020b. Policy Responses to Covid-19. IMF: <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19>.
- Justin, M. 2018. The Difference between E-Money, mobile money & mobile banking. Bank4you: <https://medium.com/bank4yougroup/the-difference-between-e-money-mobile-money-mobile-banking-5cc09430b9dc>.
- Masocha, R., Dzomonda, O. 2018. Adoption of Mobile Money Services and the Performance of Small and Medium Enterprises in Zimbabwe. *Academy of Accounting and Financial Studies Journal*, 22(3), 1-11.

- Matthew, K., Anyanwaokoro, L. 2016. Cashless Economic Policy in Nigeria: A performance appraisal of Tthe banking industry. *IOSR Journal of Business and Management*, 18(10), 1-17.
- Mora, T., Prior, F. 2018. The impact of mobile financial services' usage on microfinance delinquency. *Applied Economics*, 50(50), 5354-5365.
- Muchiri, J. 2018. Effect of mobile banking adoption on the performance of small and medium enterprises in Nairobi county. *International Journal of Economics, Business and Management Research*, 2(4), 1-42.
- Narteh, B., Mahmoud, M.A., Amoh, S. 2017. Customer Behaviourial Intentions Towards Mobile Money Services Adoption in Ghana. *The Service Industries Journal*, 37(7-8), 426-447.
- Obaro, J. 2020) Digital Financial Services Amid COVID-19. Nairametric: <https://nairametrics.com/2020/04/27/digital-financial-services-amid-covid-19/>.
- Obiezu, T. 2020. Coronavirus Pandemic fuels mobile money transactions in Nigeria. *Voanews*: <https://www.voanews.com/covid-19-pandemic/coronavirus-pandemic-fuels-mobile-money-transactions-nigeria>.
- Omol, L. 2016. Factors Influencing Acceptance of Mobile Money Applications In Enterprise Management: A Case study of Micro and Small Enterprise owners in Kisumu central business district, Kenya. Kisii University.
- Onaleye, T. 2020. MoMo, Opay: Here are 5 mobile money apps that can help reduce the use of physical cash during this pandemic. *Technext*: <https://technext.ng/2020/03/25/momo-opay-here-are-5-mobile-money-apps-that-can-help-reduce-the-use-of-physical-cash-during-this-pandemic/>.
- Plecher, H. 2020. Nigeria: Average age of the Population from 1950 to 2050. *Statista*: <https://www.statista.com/statistics/382229/average-age-of-the-population-in-nigeria/#:~:text=Median%20age%20of%20the%20population%20in%20Nigeria%202015&text=In%202015%2C%20the%20median%20age,Nigerian%20population%20was%2017.9%20years>.
- Ronald, B., Antonio, K.W. 2017. Examining trust and Risk in Mobile Money Acceptance in Uganda. *Sustainability*, 9, 1-22.
- Shannon, C. 2019. The Connected Nigerian Consumer: Mobile money. *GeoPoll Survey Report*: <https://www.geopoll.com/blog/nigeria-mobile-money/>.
- Sharma, V. 2015. Mobile money vs mobile banking. <https://vinodsblog.com/2015/12/02/mobile-money-vs-mobile-banking/>.
- Souvik, D., Payel, B., et al. 2020. Psychosocial Impact of Covid-19. *Public Health Emergency Collection*, 1-18, doi: [10.1016/j.dsx.2020.05.035](https://doi.org/10.1016/j.dsx.2020.05.035).
- Tonuchi, E.J., Idowu, P., Adetoba, O.O., Mimiko, D.O. 2020. How large is the size of Nigeria's informal economy? A MIMIC approach. *International Journal of Economics, Commerce, and management*, VIII(7), 204-227.
- World Bank. 2018. The Global Findex Database 2017. <https://globalfindex.worldbank.org/>.
- World Economic Forum. 2020. West Africans Are Switching from Cash to Mobile Money because of COVID-19. <https://www.weforum.org/agenda/2020/04/coronavirus-set-to-spur-mobile-money-growth-in-w-africa/>.
- World Remit. 2020. All about mobile money. *Worldremit*: <https://www.worldremit.com/en/mobile-money>.
- Zutt, K. 2010. Kenya Economic Update. World Bank Poverty Reduction and Economic Management Unit Africa region. <http://siteresources.worldbank.org/KENYAEXTN/Resources/Kenya-Economic-Update-June-2010.pdf>.